CLAIMS

1. A distortion compensator comprising:

an amplitude phase control section for controlling an amplitude and phase of a transmission base-band signal;

5   an quadrature modulating section for orthogonally modulating an output of the amplitude phase control section;

a power amplifier for amplifying an output of the quadrature modulating section;

a directional coupler for distributing an output of
10   the power amplifier;

a frequency converter for frequency-converting one of outputs of the directional coupler;

a Fourier transform section for Fourier-transforming an output of the frequency converter;

15   an out-band power computing section for computing an out-band power from an output of the Fourier transform section;

an amplitude computing section for computing an amplitude value of the transmission base-band signal;

20   a fixed-coefficient storing section for storing a characteristic reverse to a pre-measured input/output characteristic of the power amplifier;

an error coefficient computing section for computing an error characteristic from a stored characteristic in the
25   fixed coefficient storing section, on the basis of an output of the out-band power measuring section; and

an amplitude phase change amount computing section for

computing a change amount of amplitude and phase on the basis of outputs of the fixed coefficient storing section and the error coefficient computing section, and instructing the amplitude phase control section to carry out the control

5 on the basis of the change amount of amplitude and phase.

2. A distortion compensator comprising:

a variable attenuator for controlling an amplitude of a transmission RF signal;

a variable phase unit for controlling a phase on an

10 output of the variable attenuator;

a power amplifier for amplifying an output of the variable phase unit;

a directional coupler for distributing an output of the power amplifier;

15 a frequency converter for frequency-converting one of outputs of the directional coupler;

a Fourier transform section for Fourier-transforming an output of the frequency converter;

an out-band power computing section for computing an

20 out-band power from an output of the Fourier transform section;

an envelope detecting section for outputting an amplitude value of an envelope on the transmission RF signal;

25 a fixed coefficient storing section for storing a characteristic reverse to a pre-measured input/output characteristic of the power amplifier;

an error coefficient computing section for computing an error characteristic of from a stored characteristic in the fixed coefficient storing section, on the basis of an output of the out-band power measuring section; and

5   an amplitude phase change amount computing section for computing a change amount of amplitude and phase on the basis of outputs of the fixed coefficient storing section and the error coefficient computing section, and instructing the variable attenuator and the variable phase unit to carry

10   out the control on the basis of the change amount of amplitude and phase.

3. A distortion compensator according to claim 1, wherein the error coefficient computing section is to compute a polynomial having, as a variable, an amplitude

15   value of a transmission base-band signal or transmission RF signal, to update a coefficient of the polynomial from the out-band power.

4. A distortion compensator according to claim 1, wherein the out-band power computing section has a power

20   computing section for computing an adjacent channel leak power ratio and a determining section for determining whether the adjacent channel leak power ratio is equal to or smaller than a predetermined value or not, to instruct the power amplifier to halt operation when the adjacent channel

25   leak power ratio is greater than the predetermined value.